DOCUMENT RESUME

ED 246 389 CS 007 655

AUTHOR Gibbs, Colin J.
TITLE When You've Heard It Before and Still Can't Read.
PUB DATE Jul 84
NOTE 39p.; Paper presented at the World Congress on Reading of the International Reading Association (10th, Hong Kong, July 30-August 2, 1984).
PUB TYPE Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Beginning Reading; Elementary Education; Listening; Memorization; Parent Role; *Reading Aloud to Others; *Reading Improvement; *Reading Instruction; Reading Materials; *Reading Research; Reading Skills; Reading Strategies; Teacher Role
IDENTIFIERS *Voice Support (Reading)

ABSTRACT

A study was conducted to determine whether voice support helps children learn to read. Voice support involves reading to children while they follow the text, either informally as in bedtime reading, or formally, as in teacher or audiotaped readings of stories in the classroom. Subjects, 64 children just entering school, were unfamiliar with the 12 books used in the 24 instructional sessions. During each session the children had copies of the story, and some listened to an audiotape of the story, while some did not; some were encouraged to read each page while others only looked at the book; some heard up to six readings of a story; some heard only two. Each child had similar exposure time to the texts, even though the number of repetitions varied. Pre-instruction tasks assessed prior reading knowledge. Post-instruction tasks included high frequency word lists, writing vocabulary, and "spot" and oral cloze games. The results indicated that voice support did produce an improvement in children's reading behaviors but only on the instructional materials. The differences failed to appear with unfamiliar books. The improvement in reading may have reflected only the increased memorability of texts provided by the voice support. (HTH)

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# When you've heard it before and still can't read.

Colin J.Gibbs
Early Childhood Education
Palmerston North Teachers College
Palmerston North
New Zealand

Paper presented at the Tenth World Congress on Reading, Hong Kong, July 30 to August 2, 1984.

The writer wishes to acknowledge the valuable criticism and advice offered by Dr Tom Nicholson, University of Waikato, New Zealand during this research.

July, 1984

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## ABSTRACT

Classroom conventional wisdom says that reading aloud to children while they follow the text, as in bedtime stories and 'talking books', somehow helps them learn to read. The practical aim of this research was to find out whether or not this actually happens. A second theoretical aim was to find out whether children, on school entry, could discover for themselves, with a minimum of teaching, the links between graphic features on a page and their spoken representations by using 'voice support' instruction.

The theoretical literature suggested that this could be achieved as long as pupils have:

(a) lots of exposure to print through repeated readings of stories,

(b) feedback about what the printed forms actually represented through audiotaped readings,

and (c) opportunities to reconstruct the stories for themselves, through retellings, where pupils created their own story 'readings'.

A 3-way factorial design was used to obtain a precise focus on the effects of these instructional factors and their interaction. A wide range of dependent measures were also used in an attempt to create a sensitive index of emergent reading behaviours. The data were analysed using MANOVA and MANCOVA procedures.

In short, the study put the microscope on three techniques which have been widely espoused as significant instructional factors in reading acquisition. The results, however, suggest a need for caution. Children's reading improved, but only for the stories they had practised. In other words, children seemed to have memorised stories rather than learned to read them. In a nutshell, the effects of voice support were more apparent than real. They had learned what they had been taught, and that was all.

Implications for emergent reading instruction and research are discussed with reference to the potential of talking microcomputers, and involving parents as 'home' facilitators of print-driven behaviours.

## INTRODUCTION

The basic question asked in this study was does voice support help children learn to read. Voice support involves reading to children while they follow the text, either informally as in bedtime reading, or formally, as in teacher or audiotaped readings of stories in the classroom.

The conventional wisdom seems to be that reading books aloud to children helps them learn to read. For evidence of this belief we need only to note the prevalence of audiotaped stories as part of many commercial reading series, and the popularity of instructional techniques such as 'read-along' and 'shared book experience', where children read and reread stories together. This instructional emphasis on reading to and reading along, repetition, and memorisation is not new. In fact its roots can be traced back 200 years when children read and memorised alphabetically arranged sentences from the Bible, Lord's Prayer, and the Creed (Singer, 1981).

There is also some theoretical agreement that voice support is helpful. This procedure would seem to have the blessing of reading theorists-- even those from different camps-- though for quite different reasons. 'Meaning-driven' theorists like Smith (1975,1978), would argue that we begin to learn to read by being read to.

> "Children reading along with an adult or other reader will look out for the words that they know and choose the additional words that they want to learn or practise." (Smith, 1978, p.144).

Yet even 'print-driven' theorists like Gough (1980,1983)

would agree with the idea of voice support, since it provides the necessary data which children need to understand the print cipher.

> "...any method which provides the child with adequate data, with pairs of printed and spoken words which adequately display the correspondences between them, will enable the child to read..." (Gough and Hillinger, 1980).

However, research on this issue is surprisingly inconclusive. On the one hand, children who are often exposed to repetitive and highly memorable texts, as in favourite bedtime stories, seem to acquire 'reading-like' behaviours. They begin to approximate the actual text in their pretend 'readings', correct their own mistakes, and show other kinds of basic knowledge, such as knowing that the book tells just one story, and that it must be read correctly (Clay, 1966,1979; Gibbons, 1981; Holdaway, 1979).

On the other hand, there is little evidence to suggest that voice support does any more than this. Children may be able to approximate the text of favourite, highly memorable stories which they have heard many times before in 'voice support' settings like bedtime reading. Yet when faced with the task of reading a new book, never seen or heard before, they may not be able to read a single word (Gibbons, 1981).

The real test of any instructional technique should be to show effects beyond the texts which have been part of the instruction. That is, readers should improve on new texts as well. In reality, however, much of the research based on voice support does not show these generalisation effects.

Chomsky (1976,1979) used voice support in the form of

audiotaped oral readings of stories to help a small group of third graders who could 'decode' but were slow readers. She had these chidren read along with audiotapes until near memorisation was achieved. The programme involved other instruction as well, including phonemic awareness and writing. However, voice support was the major instruction, with all children hearing 24 stories, some repeated up to 20 times. Yet the results, after 15 weeks and more than 30 hours of instruction were inconclusive. Standardised test scores were unconvincing, and evidence for transfer effects had to be based mainly on parent and teacher reports.

Other studies have used variations of voice support, such as 'talking books' (Carbo, 1978a,1978b,1981), neurological impress (Heckelman, 1969; Hollingsworth, 1970), assisted readings (Hoskisson, 1974,1975a,1975b), and 'look and listen' (Robinson, 1979). Yet these results are difficult to interpret, mainly because of methodological problems such as lack of control groups, Hawthorne effect, and the use of raw score gain without allowance for error. A major difficulty in reviewing these studies is that the effects of voice support are often confounded with other variables such as phonic drills, buddy reading, and so on.

A further variation was the use of the child's own voice as a kind of support as in 'repeated readings', where children reread stories until they could do so fluently (Samuels, 1979). When used as an adjunct to regular instruction, repeated readings has been shown to provide significant gains over the control group on comprehension and

reading speed for poor readers (Dahl and Samuels, 1976).

So, some programmes were group-based while others were individualised, some were adult-paced while others were child-paced, some were stand-alone programmes while others were adjuncts to regular instruction, and some used the same stories each session while others used different stories.

In brief, the research on voice support is not only inconclusive, but also highly confounded. Hence this study was designed to provide a precise focus on the effects of voice support, while still retaining some of the key features which have characterised its use in classrooms. This meant varying three factors: the availability of voice support, using audiotaped oral readings via headphones; the number of repetitions of each story; and, the opportunity for children to provide their own voice support, by encouraging them to 'read' the stories for themselves.

In addition, every attempt was made to make the instructional research as relevant as possible to normal conditions in classrooms. First the sample was broadly representative. That is, allowances were made for differences in sex, variations in cultural, language and other experiential factors, as well as wide differences in reading skill. Secondly, the stories were selected to simulate as closely as possible those likely to be used in early reading instruction. Thirdly, a variety of dependent measures were used to tap reading behaviour. These tried to simulate classroom tasks. In other words, 'game-type' as opposed to 'test-type' tasks were used where possible.

This study tried to clarify the effects of a specific instructional technique on emergent reading behaviours. Five experimental questions were therefore of interest:

(1) **INSTRUCTION:** To what extent does voice support versus non voice support influence emergent reading behaviour?

(2) **REPEAT:** To what extent do high versus low numbers of instructional repeats influence emergent reading behaviour?

(3) **TELLING:** To what extent does encouragement to 'read how stories go' influence emergent reading behaviour?

(4) **INTERACTION:** Do the factors of REPEAT, INSTRUCTION, and TELLING interact in such a manner to suggest a complex interdependence between them?

(5) **ABILITY:** To what extent does ABILITY account for the effects of REPEAT, INSTRUCTION, and TELLING on emergent reading behaviour?

## METHOD

### Subjects

The sample consisted of 64 children (31 girls and 33 boys) drawn in equal numbers from each new entrant class in four urban schools. Subjects were unfamiliar with the reading materials to be used in the study, and were selected as close to school entry as possible to reduce the impact of formal instruction (age range 4:11 to 5:3 years; mean age, 5:06 years). As the regular reading instruction programme continued to occur each day, class and teacher effects were blocked by allocating children in each class to all 8 instructional groups. In other words, 16 children from each of the four classrooms were selected-- a total of 64 in all.

### Task Demands

Instruction sessions were cycled over 12 books so that 24 sessions in all were presented. During each session, each

child had a copy of the story and heard an audiotape through headphones. The subjects were in different instruction conditions. Some had voice support where they listened to an audiotaped story; some did not. Some children heard up to 6 readings of each story; some heard only 2. Finally, some pupils were encouraged to read each page while others looked at the book. At the very least, some children had 24 readings over 24 sessions; at most, some children had 72 audiotaped voice support readings over the same 24 sessions as well as a further 24 readings in which they were able to provide their own kind of voice support through retelling the story for themselves. Each child had similar exposure time to the texts, even though the number of repeats varied. That is, all cassette versions for a given story were deliberately equated. An audiotape copier made it possible to produce similar copies of readings while controlling variations which would arise from separate recordings of each version. It also made strict time control possible on each page, and on each repeat version across all 8 instruction sessions for each book. Blank audiotape was used to equate exposure time differences between LOW and HIGH instruction groups. In all, the daily sessions of between 3:53 and 11:41 minutes lasted some 5 weeks. After 24 sessions, each child was assessed on knowledge of print concepts, letters, words, writing vocabulary, word prediction, attention to text detail, 'cipher' awareness, and story 'readings'.

## Design of the Experiment

The experiment was a 2x2x2 factorial design with three

between subjects factors. The first was number of REPEATS which occurred at either HIGH or LOW levels (HIGH levels received three repeats per session whereas LOW levels received only one repeat per session).

The second factor was INSTRUCTION which also occurred at two levels. At the VOICE SUPPORT level, children heard the oral reading and page turn cues in the instruction session, whereas in NON VOICE SUPPORT the oral reading was absent but page turn cues were audible.

The third between subjects factor was TELLING which occurred as either encouragement to read each page ('READ'), or no encouragement on each page (NO'READ') (see Table 1.)

Table 1: Between subjects factors of REPEAT, INSTRUCTION AND TELLING.

| Subjects | REPEAT | INSTRUCTION | TELLING |
|---|---|---|---|
| Group 1 | HIGH | VS | 'READ' |
| Group 2 | HIGH | VS | NO'READ' |
| Group 3 | HIGH | NVS | 'READ' |
| Group 4 | HIGH | NVS | NO'READ' |
| Group 5 | LOW | VS | 'READ' |
| Group 6 | LOW | VS | NO'READ' |
| Group 7 | LOW | NVS | 'READ' |
| Group 8 | LOW | NVS | NO'READ' |

## Materials

Twenty-four beginning reading stories were selected from the same series (Story Box, 1983). The mean number of text words within stories was 80.7. The experimental design was such that the 12 stories were presented in 8 different ways during instruction corresponding with the 8 experimental groups. The instructional content matched the three design

variables of REPEAT (H/L), INSTRUCTION (VS/NVS), and TELLING ('READ'/NO'READ'). In one session, up to four runthroughs of the story were possible. The first three components of each session allowed for either HIGH or LOW numbers of repeats of a story narration with page turn cues (ie., VS) or without story narrations but with page turn cues (ie., NVS). The fourth component of each session either encouraged children to read each page ('READ'), or to look at the book until the audiotape told them to stop (NO'READ').

Dependent Measures

Pre-instruction tasks assessed prior reading knowledge. These covariate tests included concepts about print, word and letter identification, SPOT games, ORAL CLOZE games, and proposition and word match scores on 'readings' of different sets of two stories.

Post-instruction tasks were designed to measure the impact of voice support on emergent reading behaviour. These tests included all pre-instruction measures, as well as a high frequency word list from instruction stories, writing vocabulary, and 'cipher' awareness. Finally two further SPOT games, ORAL CLOZE games, and 'reading' tasks were carried out on instructional as well as new stories.

**Concepts About Print:** The Concepts About Print Test (Clay, 1972,1979) was carried out during pre- and post-instruction. In this task, the interviewer read the book "SAND" to the child who was then questioned about print concepts such as directional behaviour, and picture and print discrimination.

**Letter Identification:** Children's knowledge of letters was

assessed during pre- and post-instruction using a letter identification task (Clay, 1972).

**Word Identification:** The Burt Word Recognition Test (NZCER,1979) was given during pre- and post-instruction, and a list of 20 high frequency words from the 12 instruction books was used in post-instruction.

**SPOT Game:** The SPOT THE MISTAKE game was intended to provide a sensitive index of children's awareness of print and meaning in stories. Rather than read the entire text, children only had to identify specific words (Nicholson, 1982). A text was read once correctly while the child followed, and then reread a second time with errors deliberately implanted in the oral reading. The child's task was to call STOP when an error was spotted and then to correctly identify the mistake. The basic aim was to give children a chance to use story context as well as letter cues to 'self-correct' specific mistakes in an oral reading.

SPOT games were constructed for 2 pre- and 2 post-instruction stories as well as 2 of the stories actually used during instruction. SPOT items were implanted in oral text at a ratio of one item per ten text words. Items were chosen in equal numbers according to visual and semantic matches with target text words. So, some SPOT and text words were visually similar but semantically different (eg., park for dark); some were visually and semantically different (eg., cow for dark) and some were visually and semantically similar (eg., house for home). Finally, some were visually different and semantically similar (eg., father for dad).

SPOT game responses were scored as STRICT or KIND. A STRICT score was given when the child corrected a SPOT error with the exact text word. When the child provided a semantically or visually plausible substitution, a KIND score was given. To illustrate this, the reader may read puppy for dog. If the child substituted puppy with dog, a STRICT score was given. If the child provided a plausible substitution such as bow-wow which made sense, or even log, which looked similar, a KIND score was given.

**ORAL CLOZE Game:** This game provided an index of prediction skills. The child followed the text while listening to an audiotaped reading in which target words were deleted by an audio cue. After each deletion, the reading was paused and the child attempted to supply the omitted word.

ORAL CLOZE games were constructed from 2 pre- and 2 post-, and 2 instruction stories. Omissions occurred at a mean rate of one deletion per 9.5 words. Two types of deletion were made in equal numbers. These were interest words (nouns and pronouns), and heavy-duty words (prepositions, adjectives, conjunctions and so on).

Children's responses were scored as either STRICT or KIND. When the child's cloze response was identical to the text target word, a STRICT score was given (eg., house for house). KIND matches included visual similarities between the cloze response and the text (eg., here for house), semantic similarities (eg. cabin for house), and semantic and visual matches (eg. home for house).

**Writing Vocabulary:** Children's Writing Vocabularies (Clay, 1979) were assessed during post-instruction. This involved prompting the child to write all known and suggested words, during a 10 minute session.

**Bryant Basic Decoding Task:** The Bryant list comprises 50 surrogate words constructed from plausible phoneme combinations such as cos, relhime, and sanwixable. The task involved children saying what they thought each 'word' read. As such, the Bryant task gave an index of 'cipher' awareness. Children's responses were scored according to letter and graphic matches with target 'words'. No score was given for responses which failed to graphically match or hold letters in common with the target 'word' (eg., jump for fev).

**Children's Pretend 'Reading' Behaviour:** Emergent readers typically 'talk-like-books-go' when they look at picture-text books. The act of pretend 'reading' reveals not only insights into children's knowledge about print and book concepts, but also about how stories are structured.

Children's 'readings' were recorded during pre- and post-instruction. In all 512 story 'readings' were recorded-- that is, all 64 children 'read' 6 stories, with 2 of these stories being 'read' twice, as pre- and post-instruction measures. The interviewer prompted the child to 'read' each page by using an eliciting comment which included the word read (eg., "Read me how this goes"), and refrained from using other comments, so that some degree of consistency was held across subjects and 'readings'.

Two measures were developed for the analyses. The first

matched propositions in a child's 'reading' with those of the story. The second matched words used in a child's 'reading' against those of the text.

(1)Propositional Analysis: The 6 stories were analysed into EXPLICIT and IMPLICIT story elements defined as text 'propositions' (Rumelhart, 1975). EXPLICIT propositions were present in actual text whereas IMPLICIT propositions required the reader to infer beyond print and picture. Propositions were determined by their function in the story structure and were usually bound by phrases. For example, there were settings (s), such as the title, overt responses (or) such as speech remarks, internal responses (ir) such as emotions, and changes of state (cs) (eg., 'got muddy'). To illustrate this, Little Pig (Melser and Cowley, 1981) was analysed into propositions as follows:

| EXPLICIT | | IMPLICIT | |
|---|---|---|---|
| (s) | Little Pig | (e) | meets hens |
| (or) | "Go home," said the hens. | (ir) | concern |
| (or) | "No," said little pig. | (ir) | won't go home |
| | | (e) | meets ducks |
| (or) | "Go home," said the ducks. | (ir) | concern |
| (or) | "No," said little pig. | (e) | won't go home |
| | | (e) | meets cows |
| (or) | "Go home," said the cows. | (ir) | concern |
| (or) | "No," said little pig. | (e) | won't go home |
| | | (e) | meets sheep |
| (or) | "Go home," said the sheep. | (ir) | concern |
| (or) | "No," said little pig. | (e) | won't go home |
| | | (e) | meets butcher |
| (or) | "Go home," said the butcher, | (e) | threatens |
| (or) | "or I'll make you into sausages." | (ir) | will get harmed |
| (or) | "Yes, I will," said little pig. | (e) | go home |
| | | (ir) | be safe |

The script of each child's 'reading' was matched against implicit and explicit propositions identified from actual text. Three scoring categories were possible. An IMPLICIT

proposition was scored when a response matched a predetermined proposition not explicitly stated in the print but which was implied in the story. EXPLICIT propositions were scored when the response was semantically similar to the text proposition. When a match included at least 80% of the text words for that proposition, a STRICT score was given. Responses which included less than 80% of the text words for that proposition were scored as KIND matches.

(2) Word Match: A word match measure gave credit for actual and plausible word matches between words in a child's 'reading' and individual text words. Each word in a child's response was matched against each text word. A STRICT score was given for each word in a child's 'reading' response which was present in the text. A KIND score was given for each word in a child's 'reading' response which could plausibly substitute for a text word (eg., go/going; go/went).

## Statistical Procedures

Multivariate analyses of covariance (MANCOVA), and analyses of covariance (ANCOVA) were carried out on overall data, and on each dependent measure using pre-instruction scores as covariates. These sought to distinguish between three main effects of REPEAT (R), INSTRUCTION (I), and TELLING (T), and four interaction effects of RxI, RxT, IxT, and RxIxT. A multivariate analysis of variance (MANOVA) was also calculated using a further factor of ABILITY based on high and low standardised scores used in random assignment to groups. A follow-up correlational matrix was also computed.

## RESULTS

The data was handled as 2 sets. The first data set (Skills and 'Readings') comprised 8 pre- and 21 post-instruction variables (see Table 2). Data set two (SPOT and ORAL CLOZE) comprised 5 pre- and 12 post-instruction variables (see Table 3). To reduce the likelihood of type 1 error among the large number of F values calculated, F scores are reported as significant only when $p<.01$.

Repeat

The repeat variable occurred at two levels (HIGH/LOW) meaning that some children had many re-runs through books during instruction sessions compared to other children.

There were no repeat effects arising from the MANCOVA on Data set one for print concepts, letter and word knowledge, 'cipher' awareness, writing vocabulary, and children's 'readings'. The MANCOVA on Data set two also yielded no differences between high and low numbers of repeats over the 12 dependent variables for SPOT and ORAL CLOZE games.

In brief, MANCOVAS and ANCOVAS using Skills and 'Reading' data, and SPOT and ORAL CLOZE data, showed no main repeat effects, or interaction effects with instruction or telling.

Instruction

The instruction factor occurred at two levels (VOICE SUPPORT/ NON VOICE SUPPORT) meaning that some children heard story readings with audio page turn cues (VS), while others heard only audio page turn cues and no story reading (NVS).

The MANCOVA on Data set one revealed no effects on print concepts, letter and word identification, the Bryant task, or writing vocabulary.

There were main effects on 'readings' of instruction stories (ie, SET B stories). These effects appeared on explicit proposition matches at the strict level, $F(1,48) = 129.44$, $p<.001$, and kind level, $F(1,48) = 167.17$, $p<.001$, and for implicit proposition matches, $F(1,48) = 40.11$, $p<.001$. Likewise, effects were identified on word matches from 'readings' of SET B stories at the strict level, $F(1,48) = 136.96$, $p<.001$, and kind level, $F(1,48) = 101.33$, $p<.001$.

Inspection of the means for proposition matches show that the means on these SET B stories for voice support were considerably higher than the means for non voice support:

Means for STRICT propositions: VS= 16.06; NVS= .5513
Means for KIND propositions: VS= 27.56; NVS= 10.13.

This was also the case for word matches for SET B stories:

Means for STRICT word matches: VS= 112.9; NVS= 29.75
Means for KIND word matches: VS= 127.3; NVS= 56.28.

On the other hand, instruction effects consistently failed to appear for proposition and word matches on 'readings' of non-instruction stories (SET A2 and SET C).

The MANCOVA for Data set two showed no effects except for SPOT and ORAL CLOZE on instruction stories. Main effects were evident for ORAL CLOZE on instruction stories (SET F) at the strict level, $F(1,51)= 49.89$, $p<.001$, and kind level, $F(1,51)= 24.89$, $p<.001$. Similar effects were identified for SPOT games on instruction stories (SET H) at the strict level, $F(1,51)= 18.44$, $p<.001$, and kind level, $F(1,51)= 13.50$, $p<.001$.

Comparison of the ORAL CLOZE means for instruction type show that means for voice support (VS) and non voice support (NVS) were different at the strict and kind levels:

Means for STRICT oral cloze: VS= 18.41; NVS= 12.13
Means for KIND oral cloze: VS= 22.22; NVS= 16.97

This was also the case for SPOT measures on instruction stories (SET H) at both the strict and kind levels:

Means for STRICT Spot: VS= 10.53; NVS= 7.344
Means for KIND Spot: VS= 10.72; NVS= 8.000

In other words, the instruction factor had no effect on dependent measures other than for the instructional stories.

Telling

TELLING had two levels. At the first level ('READ'), the child was encouraged to read by the audiotape. At the second level (NO'READ'), the child looked at the book but was given no encouragement to read.

There were no effects for telling on any of the dependent measures in Data set one. These outcomes held for both non-instruction as well as instruction stories. The MANCOVA on Data set two showed only one effect for telling. This was for strict ORAL CLOZE scores on pre-instruction stories repeated in post-instruction (SET D2), $F(1,51)= 9.22$, $p<.01$. Comparison of means for type of telling show differences between 'READ' (mean= 8.281) and NO'READ' (mean= 6.313). This result is difficult to explain. The effect does not appear on other non-instruction ORAL CLOZE measures, or kind scores, and is therefore treated with caution.

Ability

A multivariate analysis of variance (MANOVA) was computed using ability as the fourth factor. Three main ability effects were yielded on Data set one. The first ability effect was on print concepts, $F(1,48)= 7.57$, $p<.01$. Inspection of the means for ability on print concepts show differences between high (mean= 13.00) and low ability (mean= 10.34).

The second main ability effect occurred for kind proposition matches from children's 'readings' of instruction stories (SET B), $F(1,48)= 8.59$, $p<.01$. Comparison of these means for high and low ability illustrate differences (High= 21.16; Low= 16.53). This suggests that high ability children tended to produce more plausible proposition matches in their 'readings' of familiar stories than low ability children.

The third ability effect was for kind word matches from 'readings' of instruction stories (SET B), $F(1,48)= 7.26$, $p<.01$. Clear differences between the means for high ability (mean= 72.75) and low ability (mean= 48.75) were apparent. This agrees with previous results. In effect, high ability children tended to produce more plausible word matches in 'readings' of familiar stories than low ability children.

The MANOVA on ORAL CLOZE and SPOT games also revealed ability effects on both sets of non-instruction stories (SET D2 and G) at the strict and kind levels. These results are not surprising. Commonsense suggests that high ability children are likely to perform better on instruction stories than low ability children. What is of more interest are the interaction effects of ability with instruction, repeat, and

telling. However, only one interaction effect for ability arose. This was for ability x instruction on implicit proposition matches from 'readings' of new stories (SET C), $F(1,48)= 7.26$, $p<.01$. That is, for implicit propositions on new stories, low ability children performed better with voice support, whereas high ability children performed better on non voice support. While this result is significant and interesting, the same effect failed to emerge on other non-instruction stories (SET A2) and is therefore interpreted with caution.

Follow-up Analysis

The results from a follow-up correlational matrix produced similar patterns to previous analyses. First, no measure was highly correlated with the repeat factor on both instruction and non-instruction stories.

Secondly, there were high correlations between the instruction factor and children's 'readings' of instruction stories. This effect was present for strict proposition matches, r= .7487, and kind proposition matches, r= .8079. Similar high correlations were yielded on these instruction stories for strict word matches, r= .7670, and kind word matches, r= .7244. Yet correlations were much lower for these measures on non-instruction stories.

Thirdly, no strong correlations with repeat were identified. This also concurs with previous analyses.

Fourthly, there were high correlations between strict explicit propositions on 'readings' of non-instruction

stories, and post-instruction word identification tasks. These were illustrated as follows. Strict explicit proposition scores on SET A2 stories correlated highly with the Burt word score, r= .7814, and high frequency word list, r= .6736. On SET C stories the pattern was similar with strict explicit propositions correlating highly with the Burt word score, r= .7545, and high frequency word list, r= .7012. However, strict explicit proposition scores on 'readings' of instruction stories (SET B) showed much lower correlations with the Burt word task, r= .2952, and high frequency word list, r= .3458. This pattern of high correlations between word measures and strict proposition scores on non-instruction stories was also apparent on kind measures.

Fifthly, the sharp correlational difference between 'readings' of instruction and non-instruction stories was also present in word match measures. For the post-instruction Burt word task, strict word matches on 'readings' of SET A2 stories correlated highly, r= .7929, as they did for the high frequency word list, r= .7134. On SET C the pattern was similar. Here strict word matches were highly correlated with the Burt word test, r= .7396, and high frequency word list, r= .7162. Conversely, for instruction stories (SET B), strict word matches were much lower for the Burt word task, r= .3161, and the high frequency word list, r= .3546. These correlational differences between instruction and non-instruction story 'readings' on word identification also reflected on kind measures.

Overall, the strong correlational differences found for

'readings' of instruction and non-instruction stories suggest that the apparent improvements in 'reading' on the instruction stories were probably more related to factors such as memorability of these stories made possible through voice support.

Follow-up Naturalistic Observation

What kinds of 'readings' did children make when they were asked to 'read'? First, many children constructed 'readings' with plausible story structures. Some children's 'readings' on stories like the non-instruction book Little Pig (Melser and Cowley, 1981) had simple story structures (see Figure 1).

Page 1 The pig was running away...
Page 2/3 Chickens found him...ducks found him...
Page 4/5 The cows found him...the sheep found him...
Page 6/7 um...the baker man found him...
Page 8 and the mother pig found him.

CHILD: P15

Others created more sophisticated story structures:

Page 1 The Little Pigs
Page 2/3 One day the pig went down to the chickens
and asked him if they would play...
and then the pig went down to the duck's place
if he wanna play...
Page 4/5 The pig went down to the pig's place
said "Do you wanna play?"
Page 6/7 The man with the sausages went...
"Pig...want some sausages?"
Page 8 um...he went home...home.

CHILD: HW11

Still others reconstructed old stories such as The Three Pigs to read Little Pig. They began "The first little pig..." but abandoned this structure when they became aware of a mismatch between their reading and the book cues.

Secondly, the simpliest 'readings' involved eyeballing

each page and counting or naming print or picture cues.

Page 1 Pigs...
Page 2 um...ducks and chooks...(etc)
CHILD: HW13

Page 1 that word (points to Little)...that's...
that's one, two, three, four...(etc)
CHILD: HE5

Thirdly, voice support stories provided a memory base to recall large amounts of text. Summary chunks of text were usually recalled rather than actual text. To illustrate this, the text "So the people ran and ran and got the giant some honey" may be read as "and he brings him some honey..."

In short, children's 'reading' behaviour typically involved eyeballing each page, naming and counting print and picture detail, while sometimes inventing new stories or reconstructing known stories. Voice supported stories were usually recalled in summary chunks rather than as word by word matches with actual text.

## DISCUSSION

(1) **INSTRUCTION:** To what extent does voice support versus non voice support influence emergent reading behaviour?

Quite simply, voice support did produce an improvement in children's reading behaviours but only on instructional materials. The differences failed to appear on unfamiliar books or on other reading behaviours. Voice support had helped them to remember how the instruction stories went, but that was all. Their superior performance only reflected their memory for text. In other words, voice support gave an appearance of better reading, but not the reality.

(2)**REPEAT:** To what extent do high versus low numbers of instructional repeats influence emergent reading behaviour?

Children who heard high numbers of instructional repetitions tended to do no better than children who heard low numbers of repeats. These results were somewhat surprising. It seems plausible to argue that high numbers of repeats would provide a type of rehearsal which was likely to have more chance of bringing about changes in reading behaviour than low numbers of repeats. Yet the evidence failed to support this. Perhaps more repeats would have produced an effect. Alternatively, many of the instruction stories were short and highly memorable anyway, so that repetitions were not needed.

(3)**TELLING:** To what extent does encouragement to 'read how stories go' influence emergent reading behaviour?

It could be argued that encouragement to 'read' stories provides children with a chance to reconstruct text for themselves, which in turn may contribute to proficiency. Yet children who were encouraged to read each page tended to perform no better than those who simply looked at the book. What does this mean? Again, the results may simply reflect the fact that children are not going to learn to read simply by having a book to read. If they do not know how to convert squiggles on the page into spoken representation, then giving them a book to 'read' may be quite useless. The child who 'learns to read by reading' has probably already made the necessary insights, so has something to gain by reading. The child who has not done so will have nothing to gain.

(4) **INTERACTION:** Do the factors of REPEAT, INSTRUCTION, and TELLING interact in such a manner to suggest a complex interdependence between them?

The evidence suggested that repeats, instruction, and telling did not interact in such a way to suggest there was an interdependence between them.

(5) **ABILITY:** To what extent does ABILITY account for the effects of REPEAT, INSTRUCTION, and TELLING on emergent reading behaviour?

Commonsense would suggest that high ability children will tend to score higher than low ability children-- and they did, on print concepts and 'readings' of instruction stories. What was of interest, though, was to clarify whether any of the factors, or the interaction between them was significantly different for high and low ability children. This would seem useful as it may suggest those factors which 'worked' best with more or less able students.

However, the results failed to reveal significant interactions. What this meant was that high and low ability children were not comparatively more advantaged by the effects of either repeats, instruction, or encouragement to read. This is interesting in that many 'looking- listening-reading' approaches have focussed on low achieving readers.

## CONCLUSION

To summarise, the results of the study suggested that the effects of voice support were more apparent than real. Effects were limited only to texts where voice support was provided. This means that what appeared to be reading

improvement may only have reflected the increased memorability of texts provided by voice support.

## Theoretical Implications

Theoretically, this study considered both 'meaning-driven' and 'print-driven' viewpoints. For instance, ORAL CLOZE provided an index of prediction skills. The Bryant 'word' task and SPOT games gave data on cipher awareness--that is, children's knowledge of grapheme-phoneme links.

It was clear from the study, however, that there were no obvious differences between voice support and non voice support children on either print or prediction type tasks. What this says is that voice support, even when combined with repeated readings and opportunities for children to read stories on their own, provided an insufficient data base for children to gain necessary insights about reading. The theoretical literature, especially the ideas of Gough (1980,1983) and Smith (1975,1978), suggested that this could be achieved, given that children had (a) lots of exposure to print through repeated readings of stories, (b) feedback about what the squiggles actually represented through audiotaped readings, and (c) opportunities to reconstruct stories for themselves, through retellings, where pupils created their own 'readings'. Yet this practical interpretation of the theory was not supported in this study.

## Why Did The Instruction Fail?

Well, it could be that beginning readers are lost for the words in stories. While 'talking books' provide access to a story, they do not necessarily provide access to actual

words. Children may need to have words pointed out to them as the words are being read, so that they can study the spoken-written representations-- or simply so they know which words are being said! In other words, voice support may need to be linked with word-pointing adjuncts such as videos and microcomputers, which have the potential to direct the reader's attention to specific printed words during reading.

To illustrate this, the 'Read-Along' procedure can be simulated using talking microcomputers and touch-sensitive screens. Stories can be presented on screen in a print and picture format while text is voiced by a synthesiser. Oral and spoken word matches can be achieved through highlighting individual words on the screen using procedures such as alternating inverse text display, word flashing, and bouncing balls, or by touching the word on the screen if the touch-sensitive function is available. In this way, the synthesiser provides a kind of audio-support with an added advantage of a print-directed adjunct.

Child-initiated check-out procedures during reading are also possible in a variety of ways. To do this, the child may re-run parts or all of a story programme, or touch target words on a touch-sensitive screen to check out oral-print pairings. These check-out procedures can be monitored to provide a data-base on the child's reading strategies-- data which has practical and theoretical implications.

Other variations are possible. The microcomputer can present repeated readings, with or without variations such as increasing reading rate, and decreasing aural, pictorial, and

even word-point adjunct support over repeats.

In short, talking microcomputers can systematically model directional behaviour while directing the reader's attention to specific print-based features-- words, letters, parts of words, phonemes, and letter-sound relationships. It provides the type of print and spoken word pairings that some would argue are essential for novices to progress from code to cipher readers.

An example of this kind of approach is a study by Nicholson (in progress) where a humanoid type of reader called 'Morf' reads stories to the child using voice synthesis, and the child interacts by participating in various kinds of activities initiated by Morf. This programme has support features such as word pointing, rerunning of text, self-correction, and editing games involving the child correcting Morf's reading and writing mistakes. Results to date indicate that children enjoy the activities, are highly attentive to the text, and appear to be focussing on aspects of print relevant to cipher awareness.

However, there are some problems with the 'Read-Along' simulate notion. Some may question the extent to which children are prepared to 'Read-Along' with the voice synthesiser. Others may question the artificiality of computer voice production, and its effects on reading intonation, phonemic identification and enjoyment. Yet the evidence for these concerns for novice readers has not been clearly established.

Even word-pointing adjuncts, however, may not be enough--much may depend on the child's 'cryptoanalytic intent'. It could be that children begin schooling as code readers, not focussing on the aspects of print that matter (Gough and Hillinger, 1980; Nicholson, 1984). Yet they may have to go beyond this point and experience a kind of 'lightbulb effect', where the print system starts to make sense.

A further study by the present writer seeks to investigate the extent to which early reading progress depends on 'cipher' awareness. Rather than providing audiotaped instruction, this study involves parents as 'home' facilitators of print-driven behaviours in their preschool children. In short, the study aims to determine the extent to which instruction such as read-along, phonemic awareness and letter recognition influence beginning reading progress.

**Limitations**

In evaluating the findings of this present study, however, there are some limitations which should be noted.

First, the design presented a maximum of 96 runthroughs over 12 books. Yet this may still have been insufficient for instruction effects to generalise. Afterall, the total instruction time was only about three hours, over a five week period. On the other hand, the question needs to be asked--would more time and more repeats have made any difference? Afterall, the children performed very well on their 'readings' of the instruction stories. In fact the data suggested that there was an overkill, to some extent, on the repeated readings factor-- the extra readings had very little

effect. So the investment in time needs to be carefully weighed against the effectiveness of the instruction in generating reading gains.

Secondly, the encouragement to read (TELLING) factor was only a simulate. It was not personalised to the reader, and gave no feedback to the child. The design did not monitor the extent to which children actually 'read' when encouraged, or the types of 'readings' they produced during instruction.

A third limitation related to individual differences. Some children may have needed high numbers of repeats on some books, but not on others, to achieve some semblence of reading fluency. Yet this present design rigorously controlled the number, type and extent of exposures.

Finally, the subjects were five year olds drawn from four schools in their first few weeks at school, and unfamiliar with the Story Box materials used in the study. Likewise, the 24 stories represent only a sample of material presently used in emergent reading programmes. So, the implications are that the results are limited to these stories and to that particular five-year old new school entrant population.

**Concluding Statement**

In conclusion, the study suggests that voice support had limited effects on emergent reading. The lack of generalisation to new material casts some doubt on its utility as an instructional technique for beginning readers. The results also cast doubt on the instructional impact of widely espoused practices such as 'shared book' and 'read-along', which share some of the features of voice

support and which often form an integral part of beginning reading programmes. Clearly, there seems to be more to learning to read than simply being read to. On the other hand, there was little doubt that voice support children enjoyed hearing the stories-- and even the non voice support children seemed diligently to tolerate the experiences. But changes in reading attitude need to be matched by changes in reading performance. This was not so, at least in this short-term study.

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Figure 1: Reduced scale, black and white copy of the pre-instruction story titled "Little Pig" (Melser and Cowley, 1981).

Table 2

Pre-instruction and Post-instruction Variables on Skills and 'Reading' (Data Set One).

Pre-instruction variables

1. concepts about print
2. letter identification
3. Burt word reading

(Proposition matches on children's 'readings')

4. Strict explicit match (SET A1 books)
5. Kind explicit match (SET A1 books)
6. Implicit match (SET A1 books)

(Word matches on children's 'readings')

7. Strict word match (SET A1 books)
8. Kind word match (SET A1 books)

Post-instruction variables

1. concepts about print
2. letter identification
3. Burt word reading
4. freqlist: high frequency word list
5. writing vocabulary
6. Bryant nonsense 'word' task

(Proposition matches on children's 'readings')

7. Strict explicit match (SET A2 books)
8. Kind explicit match (SET A2 books)
9. Implicit match (SET A2 books)
10. Strict explicit match (SET B books)
11. Kind explicit match (SET B books)
12. Implicit match (SET B books)
13. Strict explicit match (SET C books)
14. Kind explicit match (SET C books)
15. Implicit match (SET C books)

(Word matches from children's 'readings')

16. Strict match (SET A2 books)
17. Kind match (SET A2 books)
18. Strict match (SET B books)
19. Kind match (SET B books)
20. Strict match (SET C books)
21. Kind match (SET C books)

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CODE. SET A: 2 pre-instruction stories combined
(SET A1: pre-instruction measure)
(SET A2: post-instruction measure using same text as for SET A1)
SET B: Combined score on 2 instruction stories.
SET C: Combined score on 2 new stories.

Table 3

Pre-instruction and Post-instruction Variables on SPOT and ORAL CLOZE
(Data Set Two).

Pre-instruction variables

1. letter identification
2. Strict ORAL CLOZE (SET D1 books)
3. Kind ORAL CLOZE (SET D1 books)
4. Strict SPOT game (SET E1 books)
5. Kind SPOT game (SET E1 books)

Post-instruction variables

1. Strict ORAL CLOZE (SET D2 books)
2. Kind ORAL CLOZE (SET D2 books)
3. Strict ORAL CLOZE (SET F books)
4. Kind ORAL CLOZE (SET F books)
5. Strict ORAL CLOZE (SET G books)
6. Kind ORAL CLOZE (SET G books)
7. Strict SPOT game (SET E2 books)
8. Kind SPOT game (SET E2 books)
9. Strict SPOT game (SET H books)
10. Kind SPOT game (SET H books)
11. Strict SPOT game (SET I books)
12. Kind SPOT game (SET I books)

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CODE: SET D /SET E:
Combined score on 2 pre-instruction stories
(SET D1: pre-instruction measure: CLOZE)
(SET D2: post-instruction measure using same text as for SET D1: CLOZE)
(SET E1: pre-instruction measure: SPOT)
(SET E2: post-instruction measure using same text as for SET E1: SPOT)
SET F /SET H: Combined score on 2 instruction stories for ORAL CLOZE (SET F), and SPOT (SET H).
SET G/ SET I: Combined score on 2 new stories for ORAL CLOZE (SET G), and SPOT (SET I).